

# SAFETY DATA SHEET

## VRLA (VALVE REGULATED LEAD ACID) BATTERY

Infosafe No.: LQ800  
ISSUED Date: 09/06/2017  
Issued by: JOHNSON CONTROLS AUSTRALIA  
PTY LTD

### 1. IDENTIFICATION

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**GHS Product Identifier**

VRLA (VALVE REGULATED LEAD ACID) BATTERY

**Company Name**

JOHNSON CONTROLS AUSTRALIA PTY LTD

**Address**

887 Wellington Rd, Rowville  
Vic 3187 Australia

**Telephone/Fax Number**

Tel: +61 3 9751 5003

Fax: +61 3 9764 3077

**Emergency phone number**

+61 3 9751 5003 (9 am - 5 pm)

**Recommended use of the chemical and restrictions on use**

Electric Storage Battery

**Additional Information**

Local Distributor: -

Federal Batteries (Ryde Batteries Wholesale Pty Ltd)

Unit G/10-16 South St,

Rydalmere, NSW 2116

Australia

Phone: 02 9638 5222

Fax: 02 9638 3427

Emergency Contact: Chemwatch 1800 039 008

### 2. HAZARD IDENTIFICATION

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**GHS classification of the substance/mixture**

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

Classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

Acute Toxicity - Inhalation: Category 4

Acute Toxicity - Oral: Category 4

Carcinogenicity category 1B

Eye Damage/Irritation: Category 1

Germ Cell Mutagenicity: Category 2

Hazardous to the Aquatic Environment - Acute Hazard: Category 1

Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1

Skin Corrosion/Irritation: Category 1A

STOT Repeated Exposure: Category 1

STOT Single Exposure: Category 1

Toxic to Reproduction: Category 1A

## Signal Word (s)

DANGER

## Hazard Statement (s)

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H332 Harmful if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

H370 Causes damage to organs.

H372 Causes damage to organs through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

## Pictogram (s)

Corrosion, Exclamation mark, Health hazard, Environment



## Precautionary statement – Prevention

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash contaminated skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

## Precautionary statement – Response

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P310 Immediately call a POISON CENTER or doctor/physician.

P363 Wash contaminated clothing before reuse.

P391 Collect spillage.

## Precautionary statement – Storage

P405 Store locked up.

## Precautionary statement – Disposal

P501 Dispose of contents/container to an approved waste disposal plant.

## IMPORTANT NOTE(S)

The classification is derived from chemicals within the battery. Exposure to battery contents is not anticipated during normal storage, handling or maintenance of the battery. Accordingly, the hazards identified refer to the possible release of battery contents.

## Other Information

No hazards occur during the normal operation of the Lead Acid Battery as it is described in the instructions for use that are provided with the Battery. Lead-acid Batteries have three significant characteristics.

- They contain an electrolyte which contains diluted sulphuric acid. Sulphuric acid may cause severe chemical burns.
- During the charging process or during operation they might develop hydrogen gas and oxygen, which under certain circumstances may result in an explosive mixture.
- They can contain a considerable amount of energy, which may be a source of high electrical current and a severe electrical shock in the event of a short circuit.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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#### Ingredients

Name	CAS	Proportion
Lead and lead compounds		65-75 %
Sulphuric acid	7664-93-9	18-25 %
Ingredients determined not to be hazardous.		Balance

### 4. FIRST-AID MEASURES

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#### Inhalation

Not considered a potential route of exposure for intact product, when used as intended. However, if exposure occurs to battery contents, remove affected person from contaminated area. Apply artificial respiration if not breathing. Seek medical attention.

#### Ingestion

Not considered a potential route of exposure for intact product, when used as intended. However, if exposure occurs to battery contents, do not induce vomiting. Wash out mouth thoroughly with water. Seek immediate medical attention.

#### Skin

Not considered a potential route of exposure for intact product, when used as intended. However, if exposure occurs to battery contents, remove all contaminated clothing immediately. Wash gently and thoroughly with water and non-abrasive soap for 15 minutes. Ensure contaminated clothing is washed before re-use or discard. Seek immediate medical attention.

#### Eye contact

Not considered a potential route of exposure for intact product, when used as intended. However, if exposure occurs to battery contents, hold eyelids apart and flush the eyes continuously with running water. Remove contact lenses. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek immediate medical attention.

#### First Aid Facilities

Eye wash fountain, safety shower and normal washroom facilities.

#### Advice to Doctor

Treat symptomatically.

#### Other Information

For advice in an emergency, contact a Poisons Information Centre or a doctor at once. (131 126)

### 5. FIRE-FIGHTING MEASURES

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#### Suitable Extinguishing Media

Class ABC extinguisher, carbon dioxide, foam, water spray.

#### Unsuitable Extinguishing Media

Do not use water jet.

#### Hazards from Combustion Products

Under fire conditions this product may emit toxic and/or irritating fumes and gases including acid mists and vapors, oxides of lead and sulphur and toxic fumes from burning the plastic case. Can release an explosive hydrogen/oxygen gas mixture.

#### Specific Hazards Arising From The Chemical

Hydrogen and oxygen gases are produced during normal battery operation and charging. These gases escape through the battery vents and may form an explosive atmosphere around the battery if ventilation is poor. Sulphuric acid is an oxidizer and can ignite combustibles upon contact. Battery casing may burn if exposed to fire.

#### Hazchem Code

2R

#### Decomposition Temperature

Not available

#### Precautions in connection with Fire

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure

mode. Cool exterior of battery if exposed to fire to prevent rupture. In case of fire the product may be violently or explosively reactive. Use water spray to disperse vapours. This product should be prevented from entering drains and watercourses. Beware of corrosive liquid splatter during water application and wear resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

## 6. ACCIDENTAL RELEASE MEASURES

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### Emergency Procedures

Corrosive liquid within the battery. If there is spillage: Evacuate all unprotected personnel. Do not allow contact with skin and eyes. Do not breathe mist/vapour. It is essential to wear self-contained breathing apparatus (S.C.B.A) and full personal protective equipment and clothing to prevent exposure. Neutralise the spill with alkali and/or water. Avoid exposure to spillage by collecting the material using vacuum and transfer into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

## 7. HANDLING AND STORAGE

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### Precautions for Safe Handling

Corrosive liquid within the battery. Handle battery cautiously to avoid spills. Attacks skin and eyes. Causes burns. Handle batteries cautiously to avoid spills. Do not short terminal. Wear suitable protective clothing, gloves and eye/face protection when handling. Use in designated areas with adequate ventilation. Avoid breathing in vapours, mist or fumes. Keep containers closed when not in use. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands after handling, and before eating, drinking, smoking or using the toilet facilities.

Use a battery carrier to lift battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of batteries. Do not tilt batteries to an angle greater than 45 degrees. Do not smoke when working near a battery. Avoid direct conductive connection across positive and negative terminals to prevent short circuit.

Lead/lead compounds from the plate can leach into the acid during use. Avoid exposure to contents of battery. Do not handle until all safety precautions have been read and understood. It is recommended that pregnant or breastfeeding women should not handle this product unless adequate exposure protection can be assured at all times. Female personnel planning pregnancy should be made aware of the potential risks.

### Conditions for safe storage, including any incompatibilities

Batteries must be kept in an upright position. Stack batteries so as to prevent accidental contact between terminal and/or other damage to terminals or containers. Whenever feasible, store on shipping pallet or rack. Do not stack loaded pallets or racks on top of other batteries. Store batteries in cool, well-ventilated location. Keep a supply of neutralizing agent in or near the storage area for emergency use. Avoid storage in areas exposed to heat or solar buildup. When batteries are completely discharged, the electrolyte will freeze when stored below -6°C. Fully charged batteries may be stored at temperatures as low as -28.8°C.

#### Sulphuric acid:

Corrosive liquid. Store in a cool dry well-ventilated area. Store away from oxidising agents and bases/acids. Keep containers closed when not in use, securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Provide a catch-tank in a bunded area. Store in original packages as approved by manufacturer. Ensure that storage conditions comply with applicable local and national regulations. For information on the design of the storeroom, reference should be made to Australian Standard AS 3780-2008: The storage and handling of corrosive substances. Reference should also be made to all State and Federal regulations.

### Storage Temperatures

Minimum: -28°C for fully charged batteries, -6°C for completely discharged batteries.

Maximum: 26°C for low shelf discharge but up to 38°C is safe.

### Other Information

Special Sensitivity: Avoid direct conductive connection across positive and negative terminals to prevent short circuit.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Occupational exposure limit values

No exposure standards have been established for this material. However, the available exposure limits for ingredients are listed below:

Sulphuric acid

TWA: 1 mg/m<sup>3</sup>

STEL: 3 mg/m<sup>3</sup>

Lead, inorganic dusts & fumes (as Pb)

TWA: 0.15 mg/m<sup>3</sup>

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

#### **Biological Limit Values**

Blood lead level should not be more than:

(i) for females not of reproductive capacity and males: 50 microg/dL (2.42 micromol/L); or

(ii) for females of reproductive capacity: 20 microg/dL (0.97 micromol/L); or

(iii) for females who are pregnant or breastfeeding: 15 microg/dL (0.72 micromol/L)

Source: Model Work Health and Safety Regulations, Australia

#### **Appropriate Engineering Controls**

None required, when used as intended. Where exposure to battery content is possible: This substance is hazardous and should be used with a local exhaust ventilation system, drawing vapours away from workers' breathing zone. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn.

#### **Respiratory Protection**

None required, when used as intended. Where exposure to battery content is possible, an approved respirator with a replaceable vapor/ mist filter should be used if engineering controls are not effective in controlling airborne exposure. Refer to relevant regulations for further information concerning respiratory protective requirements.

Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

#### **Eye Protection**

None required, when used as intended. Where exposure to battery content is possible, safety glasses with full face shield should be used. Eye protection devices should conform to relevant regulations. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

#### **Hand Protection**

Wear gloves of acid resistant gloves such as rubber, neoprene, vinyl coated or PVC. Final choice of appropriate gloves will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.

Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

#### **Footwear**

Wear safety boots.

#### **Body Protection**

Suitable protective workwear, e.g. acid-resisting clothing, cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended for spill clean up.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Description	Properties	Description
Form	Article - Battery	Appearance	Battery with plate made of lead and lead compounds and containing liquid (Electrolyte, diluted sulphuric acid) Dilute sulphuric acid: transparent liquid
Odour	Not available	Decomposition Temperature	Not available
Melting Point	327 °C (lead) -40 °C (dilute sulphuric acid)	Freezing Point	-56.4°C (dilute sulphuric acid)
Boiling Point	1740°C (lead) 110°C (dilute sulphuric acid)	Solubility in Water	Not available
Specific Gravity	1.310 (dilute sulphuric acid)	pH	Not available
Vapour Pressure	3.17 kPa (for 30% dilute sulphuric acid at 25 °C) 0.1 kPa (for lead at 25 °C)	Vapour Density (Air=1)	Not available
Evaporation Rate	Not available	Odour Threshold	Not available
Viscosity	Not available	Partition Coefficient: n-octanol/water	Not available
Density	11.2 g/cm <sup>3</sup> (Lead)	Flash Point	Not available
Flammability	Non-flammable	Auto-Ignition Temperature	Not available
Flammable Limits - Lower	4.1 % (Hydrogen Gas)	Flammable Limits - Upper	74.2% (Hydrogen Gas)

## 10. STABILITY AND REACTIVITY

### Chemical Stability

Stable under normal conditions of storage and handling.

### Reactivity and Stability

Reacts with incompatible materials

### Conditions to Avoid

Use only approved charging methods. Avoid overcharging, short-circuiting, sources of ignition, excess heat, exposure to moist air or water and mechanical and electrical abuse. Do not open, break or melt the casing.

### Incompatible materials

Oxidizing and reducing materials.

### Hazardous Decomposition Products

Under fire conditions this product may emit toxic and/or irritating fumes and gases including acid mists and vapors, oxides of lead and sulphur and toxic fumes from burning the plastic case. Can release an explosive hydrogen/oxygen gas mixture.

### Possibility of hazardous reactions

Not available

### Hazardous Polymerization

Will not occur

## 11. TOXICOLOGICAL INFORMATION

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### **Toxicology Information**

No toxicity data available for this product. Batteries are sealed articles. Exposure to lead, acid and lead contaminated acid is not anticipated during normal storage, handling and intended use or maintenance of the battery.

### **Ingestion**

Ingestion unlikely due to form of product. Ingestion of battery contents: Harmful if swallowed. Will cause nausea, vomiting, abdominal pain and chemical burns to the mouth, throat and stomach.

### **Inhalation**

Unlikely due to form of product. Inhalation of battery contents: Harmful if inhaled. Inhalation of mist or vapour will result in respiratory irritation and possible harmful corrosive effects including burns, lesions of the nasal septum, pulmonary edema, and scarring of tissue.

### **Skin**

Exposure to the battery contents: causes severe skin burns. Corrosive to the skin. Skin contact can cause redness, itching, irritation, severe pain and chemical burns with resultant tissue destruction.

### **Eye**

Exposure to the battery contents: causes eye damage. Eye contact will cause stinging, blurring, tearing, severe pain and possible burns, necrosis, permanent damage and blindness.

### **Respiratory sensitisation**

Not expected to be a respiratory sensitiser.

### **Skin Sensitisation**

Not expected to be a skin sensitiser.

### **Germ cell mutagenicity**

Unlikely for intact battery due to form of product. Exposure to the battery contents: suspected of causing genetic defects. Classified as suspected to induce heritable mutations.

### **Carcinogenicity**

Unlikely for intact battery due to form of product. Exposure to the battery contents: may cause cancer. Classified as a Known or presumed human carcinogen.

Strong inorganic acid mists containing sulfuric acid are listed as a Group 1: Carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Lead compounds, inorganic is listed as a Group 2A: Probably carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Lead is listed as a Group 2B: Possibly carcinogenic to humans according to International Agency for Research on Cancer (IARC).

### **Reproductive Toxicity**

Unlikely for intact battery due to form of product. Exposure to the battery contents: may damage fertility or the unborn child. Classified as a Known or presumed human reproductive or developmental toxicant.

### **STOT-single exposure**

Unlikely for intact battery due to form of product. Exposure to the battery contents: causes damage to organs.

### **STOT-repeated exposure**

Unlikely for intact battery due to form of product. Exposure to the battery contents: causes damage to organs through prolonged or repeated exposure.

### **Aspiration Hazard**

Not expected to be an aspiration hazard.

## 12. ECOLOGICAL INFORMATION

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### **Ecotoxicity**

Effects unlikely for intact battery. Contents of the battery: Very toxic to aquatic life with long lasting effects.

### **Persistence and degradability**

Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water.

### **Mobility**

Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil.

### **Bioaccumulative Potential**

Lead (when in the dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

### **Other Adverse Effects**

Not available

### **Environmental Protection**

Do not discharge this material into waterways, drains and sewers.

## **13. DISPOSAL CONSIDERATIONS**

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### **Disposal considerations**

The lead, plastic and electrolyte (sulphuric acid) in used lead acid batteries can be recycled. Wet storage batteries are recyclable and should be turned over to a licensed battery recycler. Do not incinerate. Battery recycling personnel should carefully follow established employer protocols when processing batteries and battery components. Do not flush contaminated electrolyte into the sewer. The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes including emptied containers are controlled wastes and should be disposed of in accordance with all applicable local and national regulations.

## **14. TRANSPORT INFORMATION**

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### **Transport Information**

Road and Rail Transport (ADG Code):

This material is classified as a Class 8 Corrosive Substances Dangerous Goods

Class 8 Dangerous Goods are incompatible in a placard load with any of the following:

- Class 1: Explosives
  - Division 4.3: Dangerous when wet Substances
  - Division 5.1: Oxidising substances
  - Division 5.2: Organic peroxides
  - Class 6, Toxic or Infectious Substances, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids
  - Class 7: Radioactive materials unless specifically exempted
- and are incompatible with food and food packaging in any quantity.

Strong acids must not be loaded in the same freight container or on the same vehicle with strong alkalis. Packing Group I and II acids and alkalis should be considered as strong.

Marine Transport (IMO/IMDG):

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Class/Division: 8

UN No: 2800

Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE electric storage (Lead)(MARINE POLLUTANT)

EMS : F-A,S-B

Special Provisions: 29, 238

Air Transport (ICAO/IATA):

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

Class/Division: 8

UN No: 2800

Proper Shipping Name: Batteries, wet, non-spillable electric storage

Packaging Instructions (passenger & cargo): 872

Packaging Instructions (cargo only): 872

Hazard Label: Corrosive

Special Provisions: A48, A67, A164, A183

Note: The product is a non-spillable battery (special provision 238) and exempted from all DG (ADG, IATA and IMDG) provisions if protected from short circuit.



**U.N. Number**

2800

**UN proper shipping name**

BATTERIES, WET, NON-SPILLABLE

**Transport hazard class(es)**

8

**Hazchem Code**

2R

**Special Precautions for User**

Not available

**IERG Number**

37

**IMDG Marine pollutant**

Yes

**Transport in Bulk**

Not available

## 15. REGULATORY INFORMATION

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**Regulatory information**

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) (exempted).

**Poisons Schedule**

Not Scheduled

## 16. OTHER INFORMATION

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**Date of preparation or last revision of SDS**

SDS created: June 2017

**References**

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.

Standard for the Uniform Scheduling of Medicines and Poisons.

Australian Code for the Transport of Dangerous Goods by Road & Rail.

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants.

Adopted biological exposure determinants, American Conference of Industrial Hygienists (ACGIH).

Globally Harmonised System of classification and labelling of chemicals.

## END OF SDS

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